

REMARKS

Claims 1, 3-17 and 19-31 are pending and await action on the merits. Claims 1, 3-15 and 17 have been withdrawn from consideration as being drawn to nonelected subject matter.

Claim 1 has been amended to recite the subject matter of canceled claim 2.

Claim 16 has been amended to be in independent form by reciting the subject matter of claim 1. Claim 16 also recites that organic solid component (A) is a polymer component which finds support in canceled claim 2. The last clause of claim 16 regarding melt-kneading the components finds support at paragraph 0136 of the specification.

New claims 19 and 20 have support in claims 3 and 4, respectively. New claim 21 has support in claims 4 and 5. New claims 22-31 find support in claims 6-15, respectively.

No new matter has been added by way of the above-amendment.

I. Election/Restrictions

The Examiner has restricted the claims under 35 USC 121 and 372 as follows:

Group I, claims 1-15, drawn to a composition having a disperse system;

Group II, claim 16, drawn to a process for producing a particle; and

Group III, claims 17 and 18, drawn to a particle.

Applicants confirm the election of Group II, claim 16 with traverse.

Based upon the Examiner's comments, the Examiner appears to be aware that the present application is a national phase 371 application, and as such, the claims should be reviewed under unity of invention practice without regard to the practice in national applications filed under 35 USC 111.

The Examiner has taken the position that Tokiwa et al. US 6,669,771 teach all the features of the invention, and as such, the present claims do not have a special technical feature

which amounts to a contribution over the art. Applicants respectfully submit that the Examiner has mischaracterized Tokiwa et al.

Tokiwa et al. teach a homogeneous biodegradable composition. This is in distinction to the disperse system of the present invention. All claims require i) a matrix (continuous phase) of a water-soluble auxiliary component (C) and ii) particulates dispersed in the matrix which contain organic solid component (A) and coloring agent (B). Accordingly, the special technical feature is the **structure** (three-dimensional characteristics) of the composition.

In view of the foregoing, the present claims have a special technical feature which amounts to a contribution over the art. As such, Applicants respectfully request withdrawal of the lack of unity finding and rejoinder of Groups I-III.

II. Issues Under 35 U.S.C. §103(a)

Claim 16 stands rejected under 35 U.S.C. §103(a) as being obvious over Tomita (U.S. 2001/0026898) in view of Mychajlowskij et al. (U.S. 5,945,245). Applicants respectfully traverse the rejection.

II - A. Tomita

Tomita discloses a toner for electrophotography comprising: a coloring agent and a binder comprising a wax and an ethyl cyclic oligosaccharide (claim 1).

Tomita discloses as follows:

the wax and the ethyl cyclic oligosaccharide are homogeneously compatible with each other in the toner composition of the present invention. In other words, the wax and the ethyl cyclic oligosaccharide are homogeneously compatible to such a degree that ethyl cyclic oligosaccharide can be dissolved in the wax at a temperature higher than or equal to the melting point of the wax in the image fixing step. Even though the image fixing temperature does not attain to the melting point of the ethyl cyclic oligosaccharide, the ethyl cyclic oligosaccharide is softened or dissolved in the wax so as to exhibit the fixing properties. (See paragraph [0027]).

Tomita also discloses as follows;

In the ethyl cyclic oligosaccharide, three alcohol hydroxyl groups in a D-glucose unit are partially or entirely replaced by ethoxyl groups. The number of locations for hydrogen bonding is decreased, and the crystallizability is also decreased. Further, since the polarity of ethoxyl group is low, the affinity of ethyl cyclic oligosaccharide for the wax with a low polarity is increased, and therefore, ethyl cyclic oligosaccharide is easily dissolved in the wax. (See paragraph [0047]).

As such, Tomita fail to teach or fairly suggest:

A process comprising **a first step** of forming a compositional structure by melt-kneading an organic solid polymer component (A), a coloring agent (B) and a water-soluble auxiliary component (C) comprising at least an oligosaccharide (C1),

wherein this melt-kneading step forms the compositional structure having:

i) a matrix (continuous phase) comprising the water-soluble auxiliary component (C), and

ii) a particulate dispersed phase comprising the organic solid polymer component (A) and the coloring agent (B), and being dispersed in the matrix (continuous phase),

wherein the process further comprises **a second step** of eluting the water soluble auxiliary component (C) from the composition to produce a particle comprising the organic solid component (A) and the coloring agent (B).

In other words, the final product is in the form of particles of (A) and (B) in view of the step of eluting the matrix (continuous phase) of (C) from the compositional structure. Clearly, the presently claimed process has significant patentable distinctions from the teachings of Tomita.

II - B. Mychajlowskij et al.

Mychajlowskij et al. disclose a surfactant free process for the preparation of toner comprising heating a mixture of an emulsion latex, a colorant, and an organic complexing agent (claim 1).

Mychajlowskij et al. disclose that it is believed the complex agents, such as a primary alkyl amino or diamino alkanes, cause the sulfonated polyester latex and colorant to aggregate and coalesce into a toner composite, or toner particles by an amidation hydrolysis of the polyester resin latex (column 6, lines 55-59).

The particles obtained after heating can be subjected to washing with, for example, water to remove residual organic complexing agent, and drying whereby there are obtained toner particles comprised of resin and colorant (column 7, lines 23-26).

II - C. Comparison between the present invention and the cited references

II - C - i. Structure of the invention

The cited references fail to disclose or suggest eluting a water-soluble auxiliary component constituting a matrix of a specific dispersed system obtained by melt-kneading. Thus, the present invention would never be predicted from the cited references. Details are as follows.

II - C - ii. Regarding eluting step and a component eliminated by the eluting step

The Examiner mentions that Tomita does not teach an eluting step and Mychajlowskij et al. teach a washing eluting step in the colored particle, and that both references are combinable.

However, Applicants respectfully submit that Mychajlowskij et al. do not cure the deficiencies of Tomita, since Mychajlowskij et al. do not teach or fairly suggest an eluting step wherein a water soluble auxiliary component (C) comprising at least an oligosaccharide (C1) is eluted from a composition having a disperse system. The component eluted with water in Mychajlowskij et al. is only an organic complexing agent such as an amine which is water-soluble.

In fact, the oligosaccharide is a key component in the composition of Tomita which provides biodegradability to the composition. As such, by combining the references in the manner that the Examiner has done would give a product composition which would not function as intended by Tomita. According to the MPEP 2143.01, "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there

is no ... motivation to make the proposed modification.”

Although colored particle of Tomita comprises ethyl cyclic oligosaccharide, this ethyl cyclic oligosaccharide is water-insoluble. Such a fact would not contradict the description that the resultant oligosaccharide is washed with hot water and dried in Tomita. The water-insolubility of the ethyl cyclic oligosaccharide is also evident from that the formula disclosed in paragraph (0050] of Tomita. That is, the hydroxyl groups of the cyclic oligosaccharide is fully ethylated and the resultant cyclic oligosaccharide has no hydroxyl group, as is apparent from the paragraph (0050].

Thus, a person skilled in the art cannot combine (a) Mychajlowskij et al. eluting a water-soluble amine by water with (b) Tomita using water-insoluble ethyl cyclic oligosaccharide as an essential component constituting the colored particle.

II - C - iii. Roles or functions of the complexing agent and ethyl cyclic oligosaccharide

According to Tomita, a mixture of constituent components is fused, kneaded and cooled, and the resultant mixture is pulverized to prepare toner particles. That is, the toner particle of Tomita contains ethyl cyclic oligosaccharide as one of the essential components constituting the toner particle (as a matrix or base material of the toner particle). Further, as is apparent from the fact that ethyl cyclic oligosaccharide is softened or dissolved in a wax for the fixing properties of Tomita's biodegradable composition, the ethyl cyclic oligosaccharide contained in the toner particles cannot be removed by eluting with water.

According to Mychajlowskij et al., the water-soluble complexing agent is removed by washing the obtained toner particles with water. Thus, the complexing agent would never form a matrix of the toner particle.

As described above, the complexing agent of Mychajlowskij et al. and the ethyl cyclic oligosaccharide of Tomita are evidently different from each other in roles or functions thereof. Thus, there is no reasonable basis to combine these references.

Further, since ethyl cyclic oligosaccharide is a matrix or base of the toner particles in Tomita, it would never be reached to remove ethyl cyclic oligosaccharide from the particles from Tomita. Therefore, if the both references are combined, it would never be predicted to elute the

specific water-soluble auxiliary component to obtain the particulate dispersed phase of the specific dispersed system as a particle, from the above references.

II - C - iv. Advantages

The present invention also shows unexpected advantages as described below.

According to Tomita, since the toner particle is obtained by pulverizing the fused and kneaded mixture, the particles have rugged shapes and the particle sizes vary widely. Moreover, according to Mychajlowskij et al., since the complexing agent is a low molecular amine, the components cannot be mixed uniformly and the shapes of the resultant particles would not be uniform.

Contrarily, according to the present invention, since the specific water-soluble auxiliary component constituting the matrix of the specific dispersed system is removed by eluting, colored particles which have narrow particle size distribution and correspond to the dispersed phase of the dispersed system can be produced industrially with advantage by a convenient method. Moreover, the dispersed system is obtained by melt-kneading, the resultant particles have spherical shape and reduced particle sizes, independent of (i) affinity (miscibility or immiscibility) between the dispersed phase and the matrix and (ii) solvent resistance. Such an unexpected advantage would never be predicted from the above cited references.

Based on the foregoing, Applicants respectfully submit that the presently claimed invention is not made obvious by the combination of Tomita and Mychajlowskij et al., and as such, withdrawal of the rejection is respectfully requested.

Sections 2-3

Claim 16 has been provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claim 24 of copending Application No. 10/580,652 in view of Tomita. In response, Applicants co-file herewith a Terminal Disclaimer (TD) over Application No. 10/580,652.

In legal principle, the filing of a TD simply serves the statutory function of removing the rejection of obviousness-type double patenting, and does not raise a presumption on the merits of the rejection. It is improper to view the simple expedient of "obviation" as an admission or

acquiescence on the merits. *Ortho Pharmaceutical Corp. v. Smith*, 22 USPQ2d 1119, 1124 (Fed. Cir. 1992) citing *Quad Envtl. Technologies Corp. v. Union Sanitary Dist.*, 946 F.2d 870, 874, 20 USPQ2d 1392, 1394-95 (Fed. Cir. 1991).

Based on the foregoing, the provisional obviousness-type double patenting rejection is rendered moot.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Conclusion

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Reg. No. 43,575, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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